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ART UNIT	**PAPER NUMBER**
2838	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/791,141	BERTNESS ET AL.	
	Examiner	Art Unit	
	Aaron Piggush	2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 August 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,9-43,45,47-54,56,109,111 and 112* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,9-43,45,47-54,56,109,111 and 112* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-4, 9-25, 28-43, 45, 47-52, 54, 56, 109, 111, and 112 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gollomp (US 6,424,157) in view of Roberts (US 6,570,385).

With respect to claims 1 and 29, Gollomp discloses a battery charging system tester configured to test a battery charging system of a vehicle, comprising: cabling configured to electrically couple to a battery of the vehicle and provide an electrical connection to the battery (col 6 ln 59-65 and seen in Fig. 7); a display configured to display information (no. 128 in Fig. 7); a microprocessor (no. 100 in Fig. 7) configured to: perform a battery test on the battery through the electrical connection to the battery wherein the battery test receives a measured battery parameter and a battery rating and provides a battery test result (col 4 ln 1-51, col 5 ln 3-11, and col 7 ln 66 to col 8 ln 8), perform a starter test on a starter of the vehicle through the electrical connection to the battery which determines starter condition wherein the starter test receives a measured starter parameter and a result of the battery test (col 6 ln 37-53, s257-s273 in Fig. 2B, col 11 ln 52-67, col 14 ln 11-19, and col 7 ln 48-53), and perform a charging system test on a charging system of the vehicle through the electrical connection to the battery which determines the charging system condition wherein the charger system test is based upon voltages

of the vehicle measured with an engine of the vehicle operating at a plurality of RPM values and the charging system test is based upon operation of the engine at a plurality of RPM values (col 10 ln 7-50, col 4 ln 33-49, col 21 ln 5-50, and col 3 ln 38-63, additionally- it is well known that an alternator being tested in real time will have the engine going through various RPM values) (wherein the three of the previous tests are also cited with col 3 ln 48-63, abstract, col 23 ln 1-9 and ln 46-67, col 25 ln 36-42, and col 26 ln 16-27); provide outputs related to the battery test, starter test, and charger system test (outputs eventually sent to the display in Fig. 7 and col 3 ln 50-57); and wherein the tester is portable (whether the tester is implemented in the vehicle of Gollomp or next to the vehicle, it is reasonably interpreted as portable, also see Fig. 7).

However, Gollomp does not expressly disclose wherein the tester is moveable between plurality of vehicles (but it does not appear that Gollomp explicitly states/shows that his tester is only used in one vehicle and not moveable). Although it should be noted that it has been held that making an old device portable or movable without producing any new and unexpected result involves only routine skill in the art. *In re Lindberg*, 93 USPQ 23 (CCPA 1952).

Roberts discloses a handheld tester for vehicles that is portable and includes a connector to which various test cables can be removeably connected (abstract), in order to provide a means for efficiently testing charging/starting systems (in multiple vehicles), which will in turn help provide advanced warning for potential failures and allow the user to address the problems more quickly.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to make the tester of Gollomp portable, as did Roberts, so that the tester could be used on

more than one vehicle (saving costs to the user), while also allowing the user to efficiently diagnose potential problems with the charging system.

With respect to claims 2-4, Gollomp discloses a user input configured to receive a rating standard selection which comprises a SAE standard (col 7 ln 63 to col 8 ln 5).

With respect to claims 9-12, Gollomp discloses wherein the battery test is based upon conductance, resistance, impedance, and admittance (col 4 ln 1-27 and col 1 ln 40-42). Furthermore, it is implied that the other values (conductance, impedance, and admittance) would easily be calculated/used due to the fact that conductance is the reciprocal of resistance, impedance is the summation of resistance and reactance, and admittance is the reciprocal of impedance or the summation of conductance and susceptance. Therefore, all of those values are technically based on resistance, which the reference clearly discloses.

With respect to claim 13, Gollomp discloses wherein an operator is instructed to start an engine for the starter test (i.e. this is implied because the operator knows that the engine must be started in order to carry out the starter test and col 6 ln 10-19).

With respect to claim 14, Gollomp discloses wherein one output comprises cranking voltage (col 2 ln 35-45, Fig. 6, and col 13 ln 50-58).

With respect to claims 15-19, Gollomp discloses wherein the one output comprises an output equivalent to "good battery", "good but recharge battery", "charge and retest battery", "replace battery", and "bad cell- replace battery" (col 20 ln 55 to col 21 ln 5, col 10 ln 21-40, and col 12 ln 14-19, especially note the various boxes in Fig. 2A-4D which have a "message" in them). Additionally, it is implied that if you are notified that you have a bad cell or a bad battery, then it needs to be replaced, or if you have a battery with a low SOC, then it needs to be

charged and retested. After further consideration, it has been concluded that although Gollomp might not display the exact copy of the message mentioned in the applicant's claims, his outputs are equivalent to the ones produced by the applicant.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to output the messages mentioned above in the device of Gollomp, in order to provide a clear and concise explanation to the user of the battery condition and any actions that would need to be taken.

With respect to claims 20-22, Gollomp discloses measuring a voltage when an engine of the vehicle is revved and no load is applied (col 4 ln 1-49), when the engine is idle and a vehicle load is applied (col 4 ln 34-39 and col 12 ln 1-13), and when the engine is revved and a vehicle load is applied (col 4 ln 1-49). Please note that since the battery test is continuously running (i.e. SOC monitoring and updating, among other tests), it is implied that the battery test will measure a voltage when the engine is being revved (i.e. that will happen under normal operation), both with and without loads applied.

With respect to claims 23, 37, and 47, Gollomp discloses wherein DC voltages are recorded (col 4 ln 1-39 and Fig. 6) by use of a DC voltage sensor, however, does not expressly disclose wherein the charging system test includes measuring AC voltage ripple by use of an AC voltage ripple detector, wherein an output is indicative of a presence of excessive diode ripple voltage, or wherein AC voltages are recorded.

Roberts discloses measuring AC voltage ripple by use of an AC voltage ripple detector (col 8 ln 64 to col 9 ln 28 and col 9 ln 65 to col 10 ln 15), and recording AC and DC voltages by use of sensors (col 9 ln 30-40 and col 10 ln 13-30), in order to provide a means to determine if

the system has excessive ripple voltage and to provide sensed voltages which are used in the testing of the charging/starting system (to help determine any problems).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to measure AC voltage ripple and record AC voltages in the device of Gollomp, as did Roberts, so that problems caused by excessive voltage ripple can be prevented while also monitoring the AC and DC voltages (which provide information as to whether or not the rest of the system is operating at it's nominal condition).

With respect to claim 24, Gollomp does not expressly disclose including a user input configured to receive a temperature.

Roberts discloses a user input configured to receive temperature (col 15 ln 63 to col 16 ln 15), in order to provide temperature information to the system which will allow a proper analysis of the system (including the battery) because temperature can greatly alter the battery characteristics.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include a user input for temperature in the device of Gollomp, as did Roberts, so that more accurate results can be attained with respect to the charging and cranking/starter systems (including the battery) which would help give a proper diagnosis of the system.

With respect to claim 25, Gollomp discloses wherein the battery test is a function of temperature (col 4 ln 1-33).

With respect to claim 28, Gollomp does not expressly disclose wherein an output is printed based upon a test.

Roberts discloses an output printed based upon a test (no. 66 in Fig. 1B and col 6 ln 6-17), in order to provide a copy of the results, which could be used for reference.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include an output printed based upon a test in the device of Gollomp, as did Roberts, so that a hard copy could be stored for referencing at a later time.

With respect to claims 30-35, Gollomp discloses wherein an output comprises battery rating (col 14 ln 57 to col 15 ln 8 and col 7 ln 65 to col 8 ln 9), measured battery capacity (col 4 ln 1-30 and col 3 ln 49-53), voltage (col 4 ln 1-3), voltage during cranking (col 2 ln 35-45, Fig. 6, and col 13 ln 50-58), idle voltage (col 4 ln 34-39 and col 12 ln 1-13), and load voltage (col 4 ln 1-15).

With respect to claims 36 and 54, Gollomp does not expressly disclose wherein the output is indicative of a presence of excessive diode ripple voltage or wherein an AC ripple voltage more than about 130 mV indicates a faulty diode or stator in the charging system.

Roberts discloses providing an output indicative of a presence of excessive diode ripple voltage and wherein an AC ripple voltage can indicate a faulty diode or stator in the charging system (col 9 ln 21-28 and col 14 ln 2-25), in order to provide earlier notification of problematic parts, therefore helping prevent larger problems that could occur.

It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to indicate a faulty diode or stator in the charging system when the AC ripple voltage is more than 130 mV.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have an output indicating the presence of excessive diode ripple voltage and wherein an AC ripple voltage more than 130 mV could indicate a faulty diode or stator in the charging system in the device of Gollomp, as did Roberts, so that additional components of the system would be tested (further narrowing down the causes of different problems) and so that earlier notification of problematic parts could be provided, which would in turn help prevent larger problems that occur when an excessively variable voltage is present.

With respect to claim 38, Gollomp discloses wherein a voltage across the battery is recorded (col 4 ln 1-18 and see rejection of claims 30-35 above).

With respect to claim 39, Gollomp discloses wherein the battery test is used to prevent incorrectly identifying an output from the charging system test as indicating the charging system as being faulty (col 21 ln 5-30 and col 3 ln 49-57).

With respect to claim 40, Gollomp discloses an analog to digital converter (no. 122 in Fig. 7).

With respect to claim 41, Gollomp discloses including an amplifier configured to couple across a positive and a negative terminal of the battery (col 8 ln 62 to col 9 ln 11).

With respect to claim 42, Gollomp does not expressly disclose an amplifier coupled to the battery through a capacitor.

Roberts discloses an amplifier coupled to a battery through a capacitor (seen in Fig. 4D and col 10 ln 4-57), in order to amplify the battery test voltage, allowing various tests of the battery including internal resistance and cold cranking ampere.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to couple an amplifier to the battery through a capacitor in the device of Gollomp, as did Roberts, so that additional testing concerning battery characteristics (such as internal resistance and cold cranking ampere) could be provided, allowing the user to make a more accurate decision on the status of the battery (i.e. should it be replaced or not).

With respect to claim 43, Gollomp does not expressly disclose including a battery voltage scaling circuit, although, it could be implied that a scaling circuit exists in the device to provide the output of Fig. 6, wherein the large variations in voltage can be seen on a single screen.

Roberts discloses a battery voltage scaling circuit (col 11 ln 58 to col 12 ln 5), in order to provide proper scaling to offset any inaccuracies due to various types of connections or connection lengths being used.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include a battery voltage scaling circuit in the device of Gollomp, as did Roberts, so that inaccuracies due to long connections or different types of connection can be avoided.

With respect to claims 45, Gollomp discloses wherein the charging system test is a function of the battery test (col 21 ln 5-30, col 7 ln 48-53, and col 3 ln 48-63).

With respect to claim 48, Gollomp discloses wherein the microprocessor is further adapted to measure a starting voltage across the battery while a starting motor is actuated (col 11 ln 40-50 and col 12 ln 1-12).

With respect to claim 49, Gollomp discloses wherein the microprocessor provides an output indicating that the battery requires charge if a starting voltage is low and the battery test indicates that the battery is discharged (col 11 ln 15-60 and no. s211-s273 in Fig. 2A and 2B).

With respect to claims 50 and 51, Gollomp discloses wherein the microprocessor provides a cranking voltage low output if the starting voltage is low and the battery test shows that the battery is fully charged and a cranking voltage normal output if a starting voltage is normal and the battery test shows that the battery is fully charged (col 13 ln 50 to col 14 ln 19, no. s211-s273 in Fig. 2A and 2B, and Fig. 6). Additionally, the term "shows that" is still seen as an equivalent of the term "indicates" which was replaced by the amendment.

With respect to claim 52, Gollomp discloses the aspects of this claim, as noted in the rejection of claims 20-22 above, and see Fig. 2A and 2B.

With respect to claim 56, Gollomp discloses wherein the battery test does not include a load test (col 4 ln 1-33 and see explanation with rejection of claims 20-22).

With respect to claim 109, Gollomp discloses a battery charging system tester, comprising a user input, a display, an electrical connection, an analog to digital converter, and a microprocessor wherein the battery charging system tester is portable, as seen in the rejections of claims 1, 2, 25, 29, 40, 48, and 52 above. Please also note the explanation provided in the rejection of claim 1 for the combination of Gollomp and Roberts to meet the requirement of "...moveable between a plurality of vehicles".

With respect to claims 111 and 112, see the rejections of claims 109, 44, and 45 above.

3. Claims 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gollomp (US 6,424,157) and Roberts (US 6,570,385) as applied to claim 1 above, and further in view of Parsonage (US 6,037,749).

With respect to claim 26, Gollomp does not expressly disclose wherein the microprocessor is configured to determine if surface charge exists on the battery.

Parsonage discloses wherein a microprocessor is configured to determine if surface charge exists on a battery (col 13 ln 59-61), in order to avoid improperly testing the battery's characteristics (wherein those results would have been otherwise affected by surface charge).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to determine if surface charge exists in the device of Gollomp, as did Parsonage, so that more accurate results for the battery's characteristics (i.e. voltage level and SOC) could be calculated after the surface charge was gone/removed.

With respect to claim 27, Gollomp does not expressly disclose wherein the microprocessor prompts an operator to turn on headlights of the vehicle based upon a surface charge determination. Although, Parsonage does disclose the surface charge determination as seen in the rejection of claim 26 above. Furthermore, it is well known in the art that turning on a load such as a headlight is an efficient and quick way to remove the surface charge of a vehicle battery.

Roberts discloses wherein the microprocessor prompts an operator to turn on headlights of the vehicle (col 18 ln 60 to col 19 ln 32), in order to place the starting/charging system in a medium load or low idle condition, which provides the proper state for certain types of testing on the vehicle (to give the most accurate measurements/results).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the microprocessor prompt the operator to turn on headlights based upon a surface charge determination in the device of Gollomp, as did Roberts and Parsonage, so that the proper state for testing can be attained which would give the most accurate measurements and results, which would help properly diagnose the system.

4. Claim 53 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gollomp (US 6,424,157) and Roberts (US 6,570,385) as applied to claim 1 above, and further in view of Cook (US 4,637,359).

With respect to claim 53, Gollomp does not expressly disclose wherein the microprocessor is adapted to receive an input indicating that the vehicle contains a diesel engine and wherein it waits for glow plugs of the engine to warm up.

Cook discloses wherein a microprocessor is adapted to receive an input indicating that the vehicle contains a diesel engine and wherein it waits for glow plugs of the engine to warm up (col 11 ln 4-20), in order to provide a tester that is compatible with a different vehicle type and so that the engine can be properly prepared for testing/start-up.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to adapt the microprocessor to receive an input indicating that the vehicle contains a diesel engine and wherein it waits for glow plugs of the engine to warm up in the device of Gollomp, as did Cook, so that a testing device could be provided which would have a more widespread usage (i.e. compatible with different engine/vehicle types) and wherein the vehicle would be allowed to properly prepare for a testing condition (i.e. start-up).

Response to Arguments

5. Applicant's arguments filed August 20, 2008 have been fully considered but they are not persuasive.

With respect to the claims, applicant argues that the prior art does not disclose performing a starter test based upon a result of a battery test, which is based upon a comparison

of a measured battery parameter and a battery rating, along with a charging system test which is based upon voltage of the vehicle measured with the engine operating at the plurality of RPM values, and wherein the charging system test is based upon operation of the engine at a plurality of RPM values.

Examiner respectfully disagrees for the following reasons: Please note the newly added/amended citations above, which were added/amended in response to the applicant's amendment (and also provide further clarification/detail of the prior art's procedures).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron Piggush whose telephone number is (571)272-5978. The examiner can normally be reached on Monday-Friday 9:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Akm Ullah can be reached on 571-272-2361. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Akm Enayet Ullah/
Supervisory Patent Examiner, Art Unit 2838

/A. P./
Examiner, Art Unit 2838

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	10/791,141	BERTNESS ET AL.	
	Examiner	Art Unit	
	Aaron Piggush	2838	